

### **REMARKS**

Applicant has carefully reviewed and considered the Office Action mailed on September 11, 2001, and the references cited therewith.

Claims 20-26, 30 and 31 are cancelled, and no claims are amended or added; as a result, claims 1-19, 27-29, and 32-34 are now pending in this application.

Required correction to claim 21, which lacked a period ending the claim, has not been made as the claim has been cancelled.

### **Affirmation of Election**

Restriction to one of the following claim sets was required:

As provisionally elected by applicant John Shudy, on June 5, 2001, applicant elects to prosecute the invention of Group I, claims 1-19, 27-29, and 32-34.

The claims of the non-elected claim set II, claims 20-26, 30 and 31 are therefore cancelled. However, Applicant reserves the right to later file continuations or divisions having claims directed to the invention as described in the non-elected claim set.

### **§102 Rejection of the Claims**

Claims 1-3, 5-8, 10, 11, 13-19 and 32-34 were rejected under 35 USC § 102(b) as being anticipated by Goldman et al. article "A Constraint-Based-Scheduler for batch manufacturing" (copy supplied by applicant). As explained in greater detail below, the Applicant believes the claims as they currently stand contain elements not found in the cited references, and respectfully traverses this rejection. Further, because a §102 rejection must show anticipation of every claimed element in a single reference, applicant respectfully requests specific citation in the cited references of each element of the claims rejected here under §102.

The cited Goldman article describes a process of scheduling batch manufacturing based on constraints. It does not comprise resizing or modifying activities into smaller activities, and therefore further does not discuss scheduling both activities and smaller activities based on different types of constraints. The Goldman article further fails to contemplate scheduling activities of any type, whether a full activity or a resized or selectively modified smaller activity, based on both continuous and discrete constraints.

The Examiner's attention is drawn specifically to page 7, line 22, in which a continuous and discrete constraints are defined, and to the surrounding text. A continuous constraint is there defined as a constraint expressing linear mathematical relationship with other variables. Further, page 3, lines 23-28, and page 7, line 27 – page 8, line 19 define and provide context for understanding continuous constraints as well as the other terms of the recited "scheduling the activities . . . based on discrete and continuous constraints".

Because the reference cited here fails to teach all elements of the pending claims, including both modifying selected activities into sets of smaller activities and scheduling the activities and smaller activities based on discrete and continuous constraints, the pending claims are believed to be patentably distinct from this reference.

Claims 1-11, 14, 15, 19, 27-29, 33 and 34 were rejected under 35 U.S.C. 102(e) as being anticipated by Zweben et al. U.S. Patent No. 6,216,109.

Zweben teaches constraint-based iterative repair of a schedule for a complex activity, such that repairs are made in each iteration of a schedule until a schedule not producing a constraint violation is obtained as a result. The system is specifically designed to only repair violated constraints and not to modify the entire preexisting schedule, minimizing perturbations of the existing schedule. Although Zweben discusses use of various types of constraints such as temporal and resource constraints (*see, e.g.* col. 14, ln. 25-52) and state and preemptive constraints (*see, e.g.* col. 15, ln. 33 -- col. 16, ln. 61), it does not define, distinguish between, or otherwise discuss discrete and continuous constraints or analogs thereof. Further, although tasks are discussed in the cited col. 14, ln. 13-20, splitting selected tasks into subtasks is not found in the reference.

In contrast, the pending claims recite modifying selected activities into sets of smaller activities, and scheduling both activities and smaller activities based on discrete and continuous constraints. More specifically, the invention as claimed in the pending claims involves selecting activities for division into smaller activities, modifying these selected activities into smaller activities, and scheduling both these modified or divided smaller activities along with other activities from the list of activities based on both discrete and continuous constraints. Attention

is drawn to the specification, p.7, ln. 22, in which a continuous constraint is defined as a constraint expressing linear mathematical relationship with other variables.

Because the cited Zweben reference does not discuss modifying sets of activities into smaller activities and scheduling the activities and smaller activities based on discrete and continuous constraints, the claims of the present invention are believed to be patentably distinct from the cited reference. Reexamination and allowance of the claims rejected here is therefore respectfully requested.

### **§103 Rejection of the Claims**

Claims 27-29 were rejected under 35 USC § 103(a) as being unpatentable over by the Goldman et al. article "A Constraint-Based-Scheduler for batch manufacturing" (copy supplied by applicant)). Applicant hereby respectfully traverses this rejection for the reasons stated above with respect to the §102 rejection of claims under the same reference. More specifically, the reference lacks both modifying selected activities into sets of smaller activities and scheduling the activities and smaller activities based on discrete and continuous constraints, and so the pending claims are believed to be patentably distinct.

Further, these claims are rejected under 35 USC 103(a) using only a single reference. Applicant respectfully traverses the single reference rejection as not all of the recited elements of these claims are found in the Goldman reference. Applicant respectfully objects to the taking of Official Notice with a single reference obviousness rejection and, pursuant to M.P.E.P. §2144.03, Applicant respectfully traverses the assertion of Official Notice and requests that the Examiner cite references in support of this position should this rejection be maintained.

### **Allowable Subject Matter**

Claim 12 was objected to as being dependent upon a rejected base claim, but was indicated to be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. As the claims from which claim 12 depends are believed to be in condition for allowance as explained above in greater detail, claim 12 is unamended and also believed to be in condition for allowance as it stands.

Conclusion

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney 612-349-9481 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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Date

Dec 11 2001

By

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Commissioner of Patents, Washington, D.C. 20231, on this 11<sup>th</sup> day of December, 2001.

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Name

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Signature